

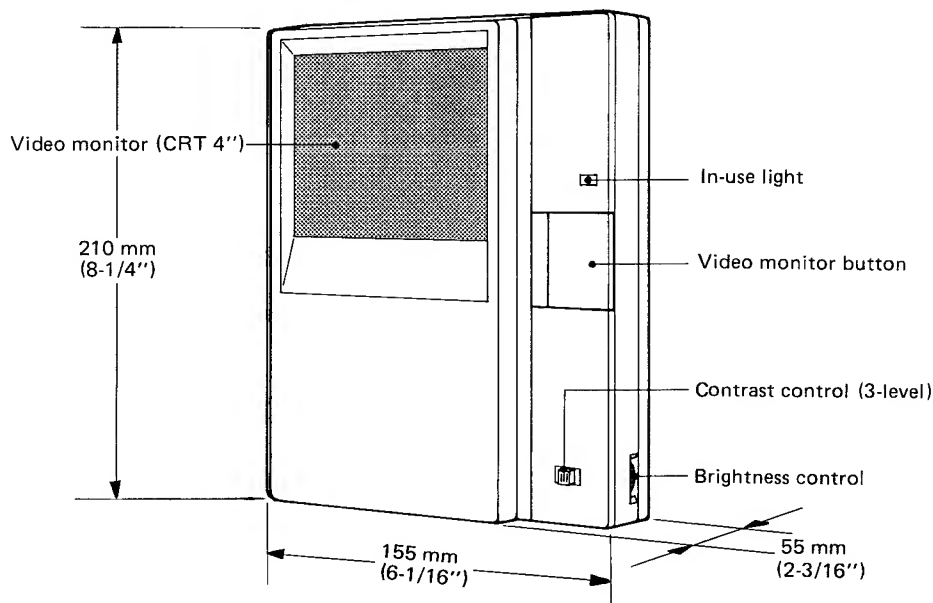
# VIDEO INTERCOM MONITOR UNIT

**MODELS: MB-U** (*Main video monitor unit*)  
**MBH-U** (*Sub video monitor unit*)

## — INSTRUCTIONS —

MB-U AND MBH-U ARE VIDEO MONITOR UNIT, THAT CAN BE USED WITH IC-2AD CHIME TONE INTERCOM MASTER STATION, AND WITH TB-F, TB-H PHONE TYPE INTERCOM SYSTEMS.

### NAMES AND FUNCTIONS



### SYSTEM FEATURES

1. Confirm a visitor visually before you answer by intercom.  
Picture comes on at all video monitors right after the visitor presses CALL button on MB-D station.
2. Compact and slim design. Completely matches with IC-2AD chime intercom's.
3. Unit type design allows easier system layout to meet your specific requirement.  
MB-D-DA/MB-U system works with;
  - (1) IC-2AD chime tone intercom system (2 doors & 3 rooms),
  - (2) TB-F phone type intercom system (2 doors & up to 11 phones),
  - (3) TB-H phone type intercom system (2 doors & up to 23 phones).
4. Two door stations . . . one MB-D/DA with camera and one intercom door station  
(select suitable type from IB-series door stations).
5. Door station is a weather-resistant type.
6. MB-U and MBH-U employ easy-to-see 4-inch direct view & flat type monitor unit.
7. Monitor button allows you to see the outside, without your voice being heard at the door station.
8. Room-to-room communication without leakage to door station.

### OPTIONAL FEATURES

1. A button on room station activates electric door strike.
2. Additional light comes on when CALL button is pressed on MB-D/DA or by pressing MONITOR button on MB-U/MBH-U video monitors (requires MAW-B relay box).
3. Extension call speaker IBR-1/A can be installed.
4. Can develop a system with up to 10 video monitor units (requires additional power supplies).

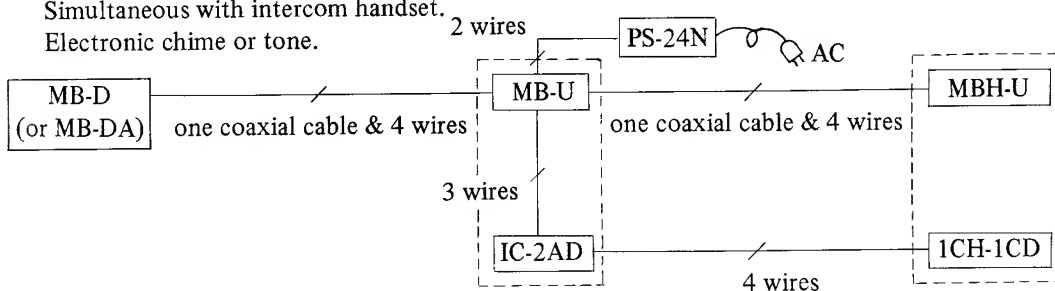
## SPECIFICATIONS

- \* Power source:
- \* Current consumption:

DC 24V, supplied by PS-24N.

Mode	Model	MB-U	MBH-U	MB-U + MBH-U (2 pcs)
In standby mode		0.15A	0	0.15A
In operating mode				
When illumination lamp is connected;		1.1A	0.35A	1.8A
When illumination lamp is not connected;		0.75A	0.35A	1.45A

- \* CRT (Cathode Ray Tube): 4 inch CRT, direct view and flat type.
- \* Scanning line: 625/525
- \* Resolution: Vertical . . . more than 250 lines.  
Horizontal . . . more than 250 lines.
- \* Communication: Simultaneous with intercom handset.
- \* Calling: Electronic chime or tone.
- \* Wiring:



\* For details, refer to the wiring diagram.

- \* Wiring distance:

For video;

Coaxial cable	3C-2V	5C-2V
Distance between MB-U & MB-D/DA	100 m	300 m
Distance between MB-U & MBH-U	100 m	100 m
Coaxial cable	RG-59/U (22 GA)	RG-59/U (20 GA)
Distance between MB-U & MB-D/DA	600'	1000'
Distance between MB-U & MBH-U	600'	600'

Note: Coaxial cable requirements on Page 5 must be met.

Power line for illumination lamp and communication line;

Wire gauge	0.8 mm dia. (0.9 mm dia.)	1.2 mm dia.	1.6 mm dia.
Distance between MB-U & MB-D/DA	100 m	200 m	300 m
Distance between MB-U & MBH-U	75 m	100 m	
Wire gauge	20 AWG	16 AWG	14 AWG
Distance between MB-U & MB-D/DA	330'	660'	1000'
Distance between MB-U & MBH-U	250'	330'	

Power supply line;

Wire gauge	0.8 mm dia. (0.9 mm dia.)	1.2 mm dia.	1.6 mm dia.
Distance between MB-U & PS-24N	3.5 m	6.5 m	12 m
Wire gauge	20 AWG	16 AWG	14 AWG
Distance between MB-U & PS-24N	12'	22'	40'

- \* Contact capacity for door release: AC 12V, 0.2A.

## SYSTEM COMPONENTS REQUIREMENTS

### (1) MB-SYSTEM WITH IC-2AD SYSTEM

	MODEL	DESCRIPTION	MAX. UNITS PER SYSTEM
ENTRANCE	MB-D MB-DA	Door station w/camera —do— (w/metal panel)	1
	IB-DA IB-NA IC-RA IB-JA IB-FY	Door station without camera	1
	MB-U	Video monitor unit	1
	IC-2AD	Main room station	1
	MBH-U	Additional video monitor unit	2
	ICH-1CD	Sub room station	2
ROOM	PS-24N	System power supply (DC 24V, 2.0A)	1
	MAW-B	Relay box for additional light	1
	EL-9S	Electric door release (AC 12V, 0.2A)	1
	IBR-1/A	Chime call extension	1

### (2) MB-SYSTEM WITH TB-F OR TB-H SYSTEM

	MODEL	DESCRIPTION	MAX. UNITS PER SYSTEM
ENTRANCE	MB-D MB-DA	Door station w/camera —do— (w/metal panel)	1
	IB-DA IB-NA IC-RA IB-JA IB-FY	Door station without camera	1
	MB-U	Video monitor unit	1
	MBH-U	Additional video monitor unit	2
	TB-3F TB-6F TB-12F	3-call master 6-call master 12-call master	Max. 11 with 2 door stations
	—or— TB-6H TB-12H TB-24H	6-call master 12-call master 24-call master	Max. 23 with 2 door stations
ROOM	PS-24N	Power supply for MB-U	1
	PS-12A (or PS-12C)	Power supply for TB-F or TB-H system	1
	DB-U	Door station adaptor (one required for each MB-D/DA & IB series door station)	Max. 2
	RY-AC	Relay for door release	1
	EL-9S	Electric door release (AC 12V, 0.2A)	1

- Notes: 1. The sub monitor MBH-U and/or sub room station ICH-1CD are optional.  
 2. TB-F and TB-H units CANNOT be connected to door station directly.  
 So, use DB-U adaptor for TB-F/H for each MB-D (or MB-DA) and IB-series door station.  
 3. IBR-1/A is an extension speaker of chime call tone only.

### MB/IC-2AD SYSTEM COMPONENTS

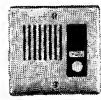
#### • Door stations;



MB-D



MB-DA



IB-JA



IB-DA

#### • Power supply & accessories;

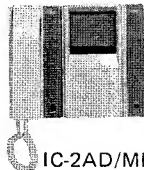


PS-24N

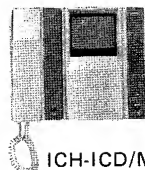


IBR-1/A

#### • Video monitors & room stations;



IC-2AD/MB-U



ICH-1CD/MBH-U



MAW-B

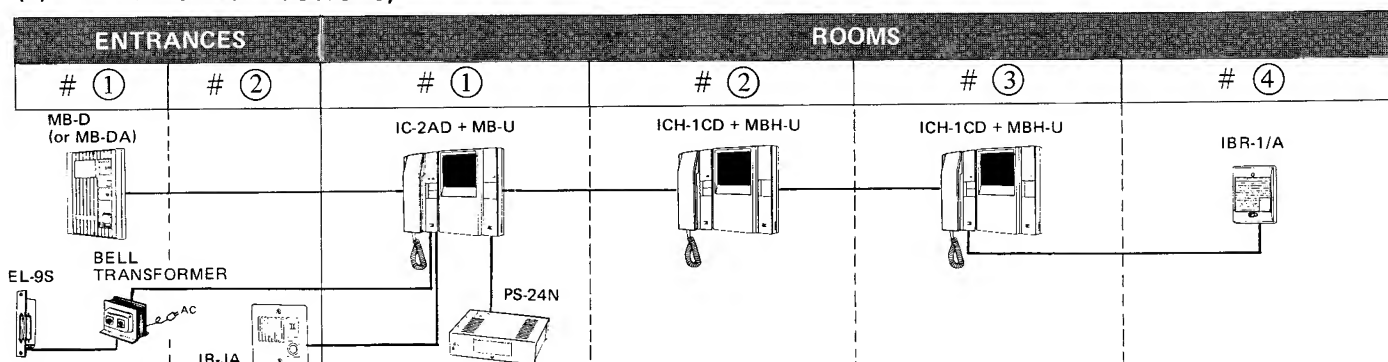


EL-9S

## SYSTEM LAYOUT EXAMPLES

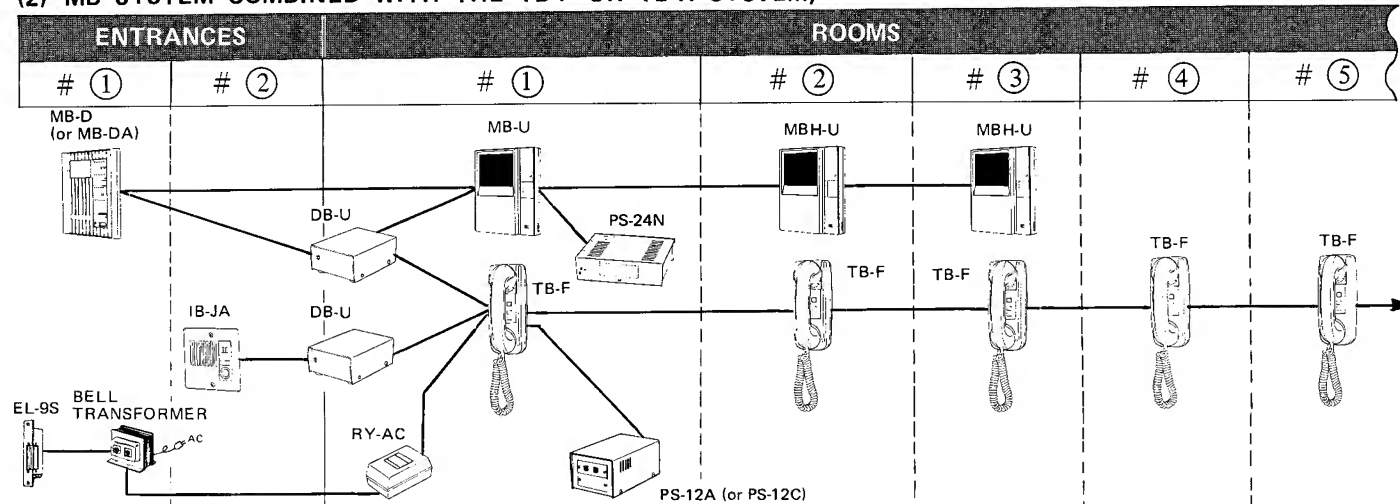
As typical examples, three system layouts are illustrated as below;

### (1) IN NEW CONSTRUCTIONS;

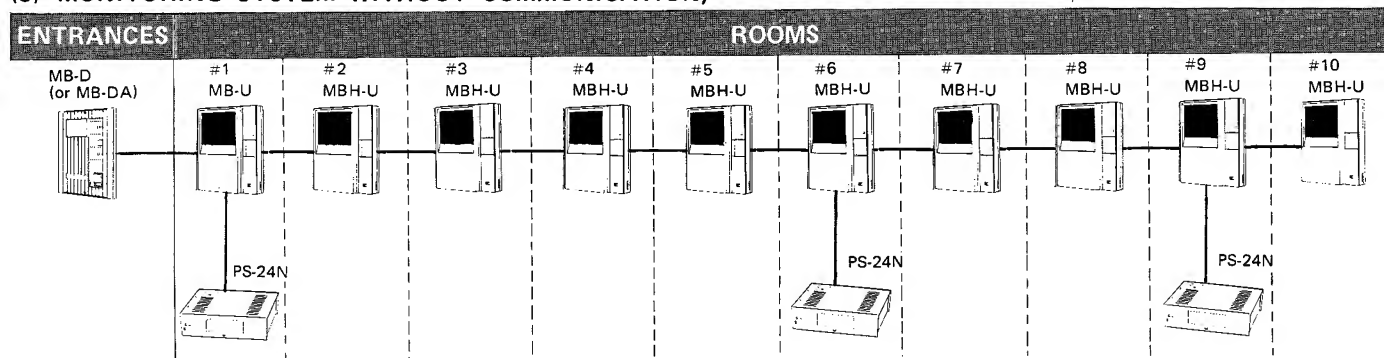


Note: The above layout shows a complete MB video intercom system. Optional are sub video monitor MBH-U and/or sub room station ICH-1CD.

### (2) MB SYSTEM COMBINED WITH THE TB-F OR TB-H SYSTEM;



### (3) MONITORING SYSTEM WITHOUT COMMUNICATION;



The basic MB system consists of one door station with camera and up to 10 monitors (one MB-U and nine MBH-U). So, additional MBH-U monitors (from #4 to #10) are optional in the above examples (1) and (2).

Notes: (1) Additional power supply is required as follows;

NO. OF VIDEO MONITORS	NO. OF POWER SUPPLIES REQUIRED
1 ~ 3 pcs (one MB-U + one ~ two MBH-U)	One PS-24N
4 ~ 8 pcs (one MB-U + 3 ~ 7 MBH-U)	Two PS-24N
9 ~ 10 pcs (one MB-U + 8 ~ 9 MBH-U)	Three PS-24N

- (2) Connect first PS-24N to MB-U with thicker possible cable and locate PS-24N as closely as possible to MB-U.
- (3) Connect coaxial cable from MB-D/DA door station to terminal **A** on MB-U.
- (4) Remove impedance-matching plug at all video monitors except at the farthest MBH-U monitor.

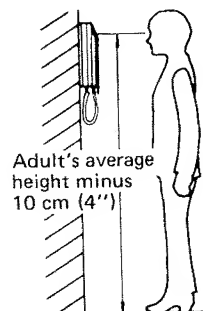
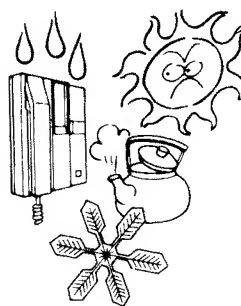
## INSTALLATION

DO NOT ATTEMPT TO INSTALL YOUR INTERCOM SYSTEM UNTIL YOU HAVE READ AND THOROUGHLY UNDERSTAND THE INSTALLATION PROCEDURE. AIPHONE'S WARRANTY IS VOID IF SYSTEM IS INSTALLED IN A MANNER OTHER THAN DESCRIBED IN THIS MANUAL.

### INSTALLATION LOCATION REQUIREMENTS

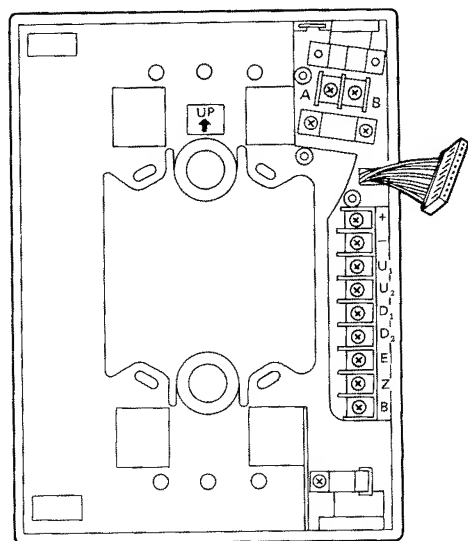
1. Do not install MB-U video monitor unit in a place where it is exposed to;

- \* direct sunlight,
- \* air conditioner heat,
- \* frost,
- \* vapor,
- \* water,
- \* chemicals,
- \* iron dust, etc.

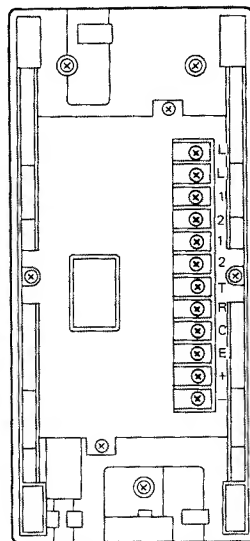


2. Determine MB-U installation height so that the center of the video monitor would be at the convenient eye level: adults' average height minus 10 cm (4").

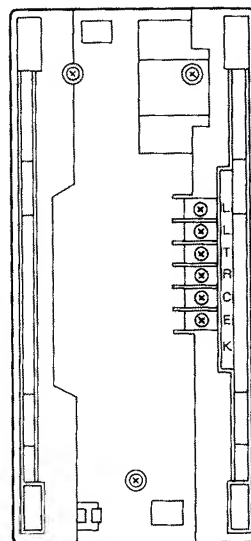
### ACTUAL TERMINAL LOCATION



MB-U CHASSIS  
INSIDE VIEW



IC-2AD BACK VIEW



ICH-1CD BACK VIEW

#### ● IC-2AD & ICH-1CD

(\* for IC-2AD only);

L, L : for electric door release

\* 1, 2 : for connecting MB-D/DA

\* 1', 2' : for connecting IB-DA, etc.

T : for receiving (IC-2AD)  
for transmitting (ICH-1CD)

R : for transmitting (IC-2AD)  
for receiving (ICH-1CD)

C : for call tone

E : common line

\*+, - : for power supply DC 24V

#### ● MB-U;

+ , - : for power supply

U1 : for output control

U2 : for input control

D1 : for detecting calling & ending of communication at MB-D/DA w/camera

D2 : for detecting calling at IB-DA, etc. without camera

E : for grounding

Z : for illumination lamp (built-in)

B : for additional illumination lamp control

### COAXIAL CABLE CONNECTION

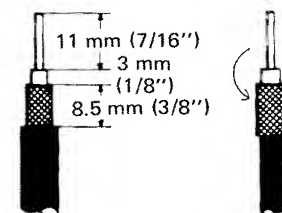
#### COAXIAL CABLE REQUIREMENTS:

Use 5C-2V or 3C-2V OR RG-59/U which must meet the following specifications;

- \* Both core and braided conductors must be of copper. (not of copper-weld).
- \* Impedance: 75 ohm.
- \* Permitted closed loop DC resistance: 14 ohm.
- \* Permitted attenuation: 6dB at 4MHz.
- \* Cable sheath size should not exceed 7.4 mm (5/16").

When using 3C-2V, strip the insulation and fold back the braided conductors, as shown to avoid shorting to core conductors.

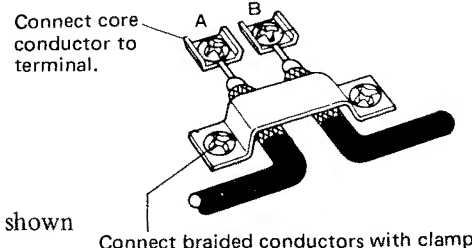
FOLD BACK



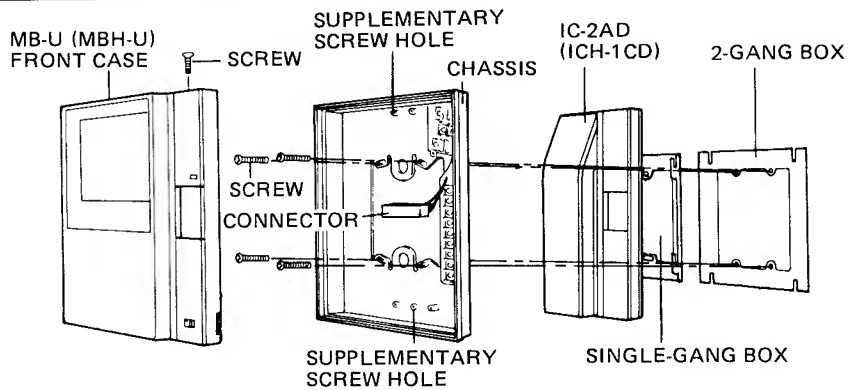
Type: 5C-2V

Type: 3C-2V

On MB-D/DA unit, connect coaxial cable to a terminal marked **A**.

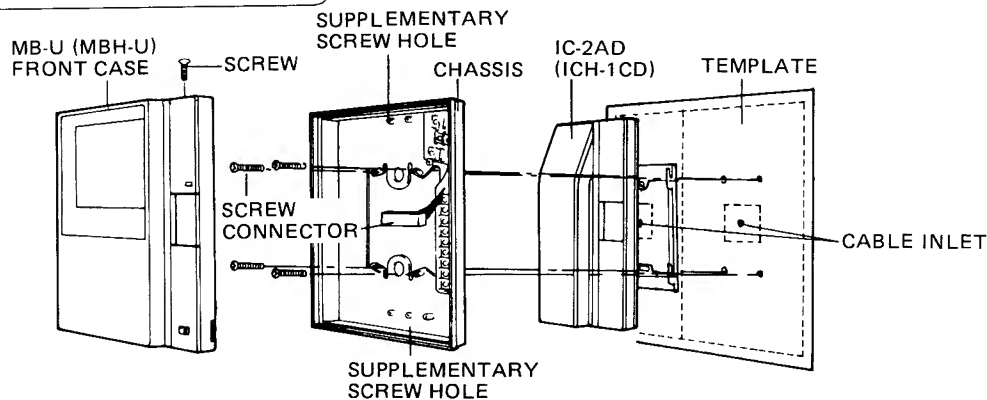


## SURFACE MOUNTING USING GANG BOXES



1. Before mounting MB-U monitor unit, attach IC-2AD unit onto the bracket.
2. To mount MB-U unit, remove a screw on top of the case, and separate front panel from the chassis. Remove the connector.
3. Attach the chassis onto the 2-gang box with the supplied screws.
4. If MB-U unit can not be fitted with IC-2AD, attach the chassis directly to wall with the supplied wood screws, after fixing the chassis at the most adequate point of three supplementary screw holes.
5. Connect coaxial cable and wires for communication, and reattach connectors.
6. Replace the front panel to the chassis.

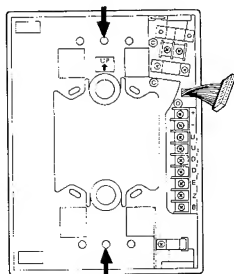
## SURFACE MOUNTING TO WALL



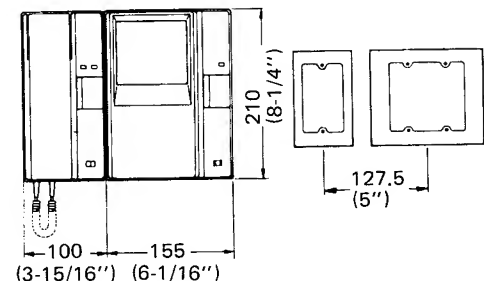
1. Attach a template provided to the wall and decide the mounting points of screws for both IC-2AD and MB-U.
2. First, attach IC-2AD unit onto the bracket mounted on the wall.
3. Remove a screw on top of the case, and separate front panel from the chassis, and remove connector.
4. Attach the chassis onto the concrete wall with the supplied anchor bolts, or if onto the plaster board, with the board fastener also supplied.
5. Connect coaxial cable and wires for intercom, and reattach connectors.
6. Replace the front panel to the chassis.

### MB-U AND IC-2AD (MBH-U AND ICH-1CD) MOUNTING LOCATION

The video monitor MB-U or MBH-U mount onto the 2-gang box, and chime tone intercom IC-2AD or ICH-1CD mount onto the single-gang box. As shown, locate the two gang boxes so that the interval between center of two boxes is measured 127.5 mm (5"), which secures mounting two units neatly.



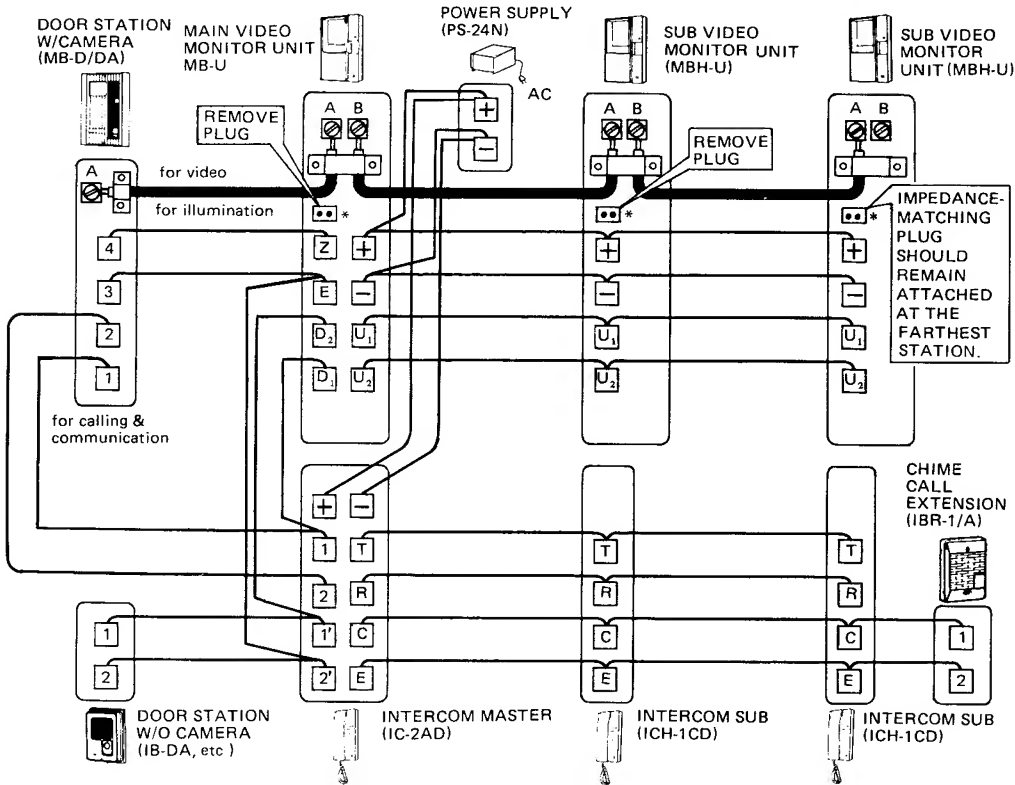
On MB-U/MBH-U chassis, six supplementary screw holes are provided to fix the monitor unit at the most adequate point on the wall directly.



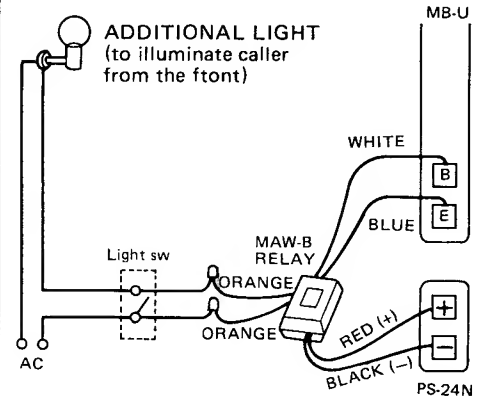
## WIRING DIAGRAM

### 1. Complete MB-D-DA/MB-U system, combined with IC-2AD Chime tone intercom system;

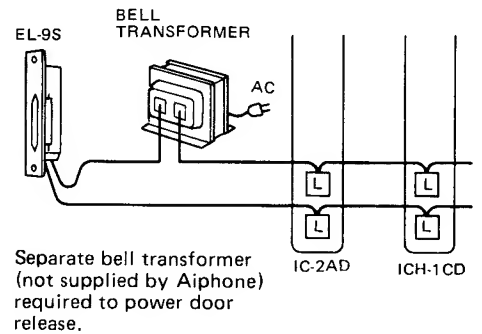
Power supply line should be run from each +, - terminals of MB-U and IC-2AD.



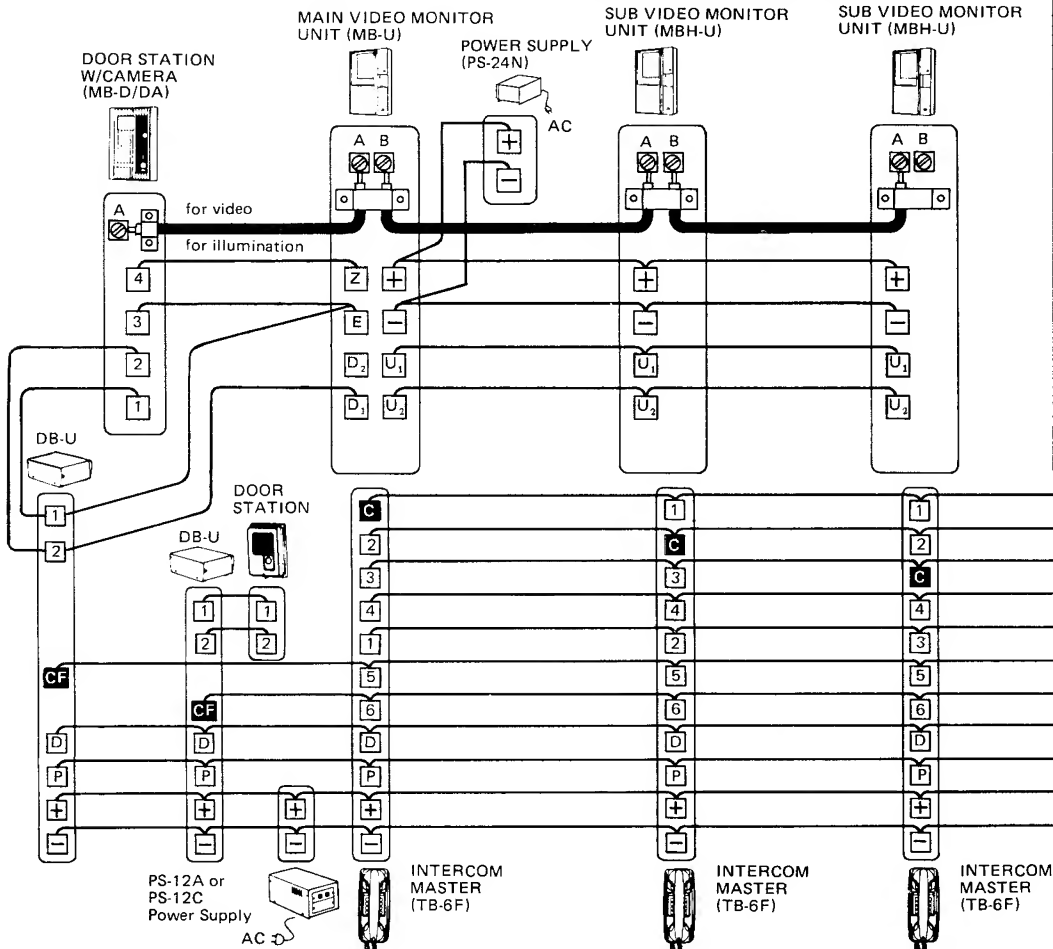
#### 1. When additional light is required;



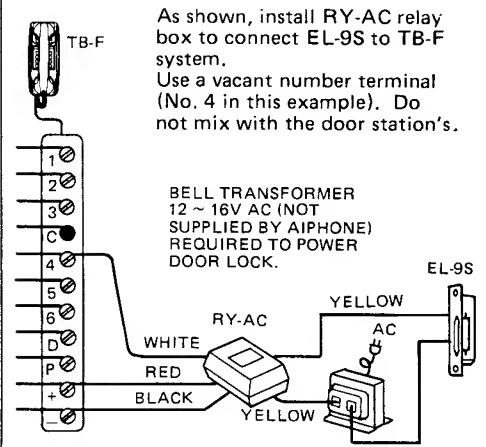
#### 2. When door release is required;



### 2. MB-D-DA/MB-U system, combined with TB-6F phone type intercom system;



#### 1. When door release is required;



## TROUBLE SHOOTING GUIDE

No.	MODE OF TROUBLE	LOOK FOR
1.	Unit totally dead.	<ul style="list-style-type: none"> <li>* Power supply (PS-24N) not plugged.</li> <li>* Connector leads to power supply disconnected or shorted.</li> </ul>
2.	Can call and communicate, and picture tube lights, but no picture.	<ul style="list-style-type: none"> <li>* Inferior connector of coaxial cable at the terminal end.</li> <li>* Short in coaxial cable connections at the terminal end.</li> <li>* Break in coaxial cable.</li> <li>* Coaxial cable disconnected.</li> <li>* Door station is strongly backlighted, and beam sensor closes.</li> <li>* Defective camera.</li> </ul>
3.	Can call and communicate, but picture tube remains dark.	<ul style="list-style-type: none"> <li>* Defective video monitor.</li> </ul>
4.	Cannot call from door station.	<ul style="list-style-type: none"> <li>* Defective door or room station.</li> </ul>
5.	Picture appears, but can not communicate.	<ul style="list-style-type: none"> <li>* Defective door or room station.</li> </ul>
6.	Inferior sensitivity and contrast of picture tube.	<ul style="list-style-type: none"> <li>* <u>Worn out camera tube (a general life is approximately 3 years in normal application).</u></li> </ul>
7.	Fuzziness in bright area.	
8.	Sports in picture.	
9.	"Negative" image (reversal of black and white).	<ul style="list-style-type: none"> <li>* <u>Worn out picture tube (a general life of picture tube is approximately 4 years in normal application).</u></li> </ul>

### CAUTIONS

- (1) DO NOT OPEN THE BACK COVER OF MB-U AND MBH-U UNITS, WITHOUT FIRST REMOVING PLUG OF PS-24N POWER SUPPLY FROM AC OUTLET. The high voltage is loaded on the monitor unit inside.
- (2) DO NOT CONNECT ANY TERMINAL ON MB-U AND MBH-U UNIT TO AC POWER LINES.
- (3) Do not drop or apply mechanical shocks which may damage the picture tube.
- (4) Do not run the coaxial cable/wires through doors/windows or between furniture, as they may pinch the wires.
- (5) Your AIPHONE intercom station may be cleaned with a soft cloth dampened with neutral household cleanser. Never use benzine or thinner.
- (6) DO NOT HOLD HOOK SWITCH DOWN WHILE PICKING UP HANDSET. THE CHIME TONE SOUNDS THROUGH THE HANDSET RECEIVER ELEMENT AND COULD CAUSE HEARING DAMAGE.



### WARRANTY

Aiphone warrants its products to be free from defects of material and workmanship under normal use and service for a period of one year after delivery to the ultimate user and will repair free of charge or replace at no charge, should it become defective upon which examination shall disclose to be defective and under warranty. Aiphone reserves unto itself the sole right to make the final decision whether there is a defect in materials and/or workmanship; and whether or not the product is within the warranty.

This warranty shall not apply to any Aiphone product which has been subject to misuse, neglect, accident, or to use in violation of instructions furnished, nor extended to units which have been repaired or altered outside of the factory.

This warranty does not cover batteries or damage caused by batteries used in connection with the product.

This warranty covers bench repairs only, and any repairs must be made at the shop or place designated in writing by Aiphone. Aiphone will not be responsible for any costs incurred involving on site service calls.